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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,535	10/29/2003	Michael George Azar	05516/147002	7821

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EXAMINER	
COLLINS, GIOVANNA M	
ART UNIT	PAPER NUMBER
3672	

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/696,535

Applicant(s)

AZAR ET AL.

Examiner

Giovanna M. Collins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-47 is/are pending in the application.
- 4a) Of the above claim(s) 31-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-30 and 40-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20040727, 20040503.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claim 1-9,11-30 and 40-47, drawn to drill bit insert, classified in class 175, subclass 434.
 - II. Claims 31-39, drawn to method of forming a drill bit, classified in class 76, subclass 108.2.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the bit can be made by a casting process.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Jeff Bergmann on 6/8/05 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-9,11-30 and 40-47. Affirmation of this election must be made by applicant in replying to this Office action. Claims 31-39 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

Claims 45-46 are objected to because of the following informalities:

In claim 45 the acronym "CBN" should be defined.

Claim 46 recites the limitation "the diamond concentration and diamond particle size" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim as this limitation has not been previously recited.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4,7-9,14,16-19,22-24,27, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Fuller 4,718,505.

Referring to claims 1, 8,16,18, and 40, Fuller discloses method and apparatus of contacting a bit with a mixed formation (col. 3, lines 19-21), the bit a drill bit comprising (figs. 1 and 6) a bit (100) having at least one blade (11) and at least one cutting element diamond impregnated insert body (fig. 6) with a thermally stable shearing portion (15) disposed on the diamond impregnated insert body post infiltration.

Referring to claim 2, Fuller discloses the shearing portion comprises polycrystalline diamond (col. 4, line 8-10).

Referring to claims 3-4, 23-24, Fuller discloses a bonding portion (18) of tungsten carbide (col. 4, line 8-12).

Referring to claims 7 and 22, Fuller disclose the insert body comprises thermally stable polycrystalline diamond or coated natural diamond (col. 4, lines 20-23).

Referring to claims 9, 17, 27, Fuller discloses the shearing portion (15) forms a leading edge of the insert.

Referring to claim 19, Fuller disclose the total exposure of the insert body (19) to temperatures about 1000 F is great than a total exposure of the shearing portion (15) to temperatures about 100 F.

4. Claims 41-44 and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Cawthorne et al. 5,351,770.

Referring to claims 41-44 and 46, Cawthorne discloses a composite cutting element comprising an insert body (32) having a mixture of cubic boron nitride crystals or diamond crystals and carbides (col. 4, lines 42-43) and a thermally stable shearing element (34) where the abrasive resistance varies depending of the formation compressive strength and abrasivity and the size of the ultra hard material.

5. Claims 41 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Waldenstrom et al. 5,217,081.

Waldenstrom discloses an abrasive insert body with a mixture of diamond crystals, CBN crystal cemented with carbides (col. 3, lines 48-58) and a thermally stable shearing element (see fig. 2a, at 3) on the element body.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-6, 11-13, 25-26, 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller '505 in view of Siever et al. 5,279,374.

Fuller does not disclose a coating on the insert body of the shearing portion. Siever teaches a tungsten carbide layer on an insert body and a shearing portion of the insert (see Fig. 3 and col. 2, lines 35-46). Siever teaches the coating helps to prevent

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the inserts from being lost before they fully wear due to pockets wearing out before cones (col. 1, lines 37-42). As it would be advantageous to prevent the lost of inserts before they are fully worn, it would be obvious to one of ordinary skill in the art at the time of the invention to modify the insert disclose by Fuller to have a tungsten carbide coating as taught by Siever.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller '505.

Fuller does not disclose the diamond is 1 carat in size. However, a change in the size of a prior art device is a design consideration within the skill of the art. In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955). Therefore, it would be obvious to one of ordinary skill in the art to modify bit disclose by Fuller to have the diamond be 1 carat in size because a change in the size of a prior art device is a design consideration within the skill of the art.

9. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller '505 in view of Caraway et al. 6,193,000.

Referring to claims 20-21, Fuller does not disclose the bit body is diamond impregnated tungsten carbide matrix. Caraway teaches that such bits are well known in the art (col. 4, lines 30-49). As one of ordinary skill in the art would be familiar with a body that is diamond impregnated tungsten carbide matrix, it would be obvious to one of

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ordinary skill in the art to modify bit disclose by Fuller to have a body that is diamond impregnated tungsten carbide matrix as taught by Caraway.

10. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cawthorne '770 in view of Keshavan 5,45,092.

Cawthorne does not disclose the diamond concentration is selectively varied. However, Cawthorne does disclose the cutter is made by the process disclose by Keshavan (see col. 4, lines 42-48). Keshavan teaches the diamond concentration can be varied (see col. 5, liens 10-40). Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to modify the insert disclosed by Cawthorne to vary the diamond concentration as taught by Keshavan because the process taught by Keshavan is used to make the inserts.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Giovanna M. Collins whose telephone number is 571-272-7027. The examiner can normally be reached on 6:30-3 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


gmc


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